

**WHAT IS CLAIMED IS:**

1. A multilayer optical composite comprising four or more layers including
  - a first non-adhesive optical layer having an index of refraction  $n_1$ ,
  - an  $i^{\text{th}}$  non-adhesive optical layer having an index of refraction  $n_i$  greater than  $n_1$ , and
    - a multilayer optical adhesive between the first layer and the  $i^{\text{th}}$  layer, wherein indices of refraction of layers of the multilayer optical adhesive increase between  $n_1$  and  $n_i$  in the order of position from the first layer.
2. The composite of claim 1 wherein the multilayer optical adhesive comprises three or more adhesive layers.
3. The composite of claim 1 consisting essentially of
  - the first layer with index of refraction  $n_1$ ,
  - the  $i^{\text{th}}$  layer with index of refraction  $n_i$ , and
  - a multilayer optical adhesive consisting essentially of from 3 to 20 polymeric layers having indices of refraction monotonically changing between  $n_1$  and  $n_i$  based on the position of the polymeric layer from the first layer.
4. The composite of claim 1 wherein the multilayer optical adhesive consists essentially of
  - a first adhesive layer adjacent to the first non-adhesive optical layer
  - an  $x^{\text{th}}$  adhesive layer adjacent to the  $i^{\text{th}}$  non-adhesive optical layer, and
  - $x-2$  polymeric layers between the first adhesive layer and the  $x^{\text{th}}$  adhesive layer.
5. The composite of claim 4 wherein  $x$  is from 3 to 18.
6. The composite of claim 1 wherein the difference between refractive indices of any two adjacent layers of the multilayer optical adhesive is no greater than 0.05.

7. The composite of claim 1 wherein the multilayer optical adhesive comprises 10 or more layers each having an index of refraction between  $n_1$  and  $n_i$ , and the difference between the refractive indices of any two adjacent layers is no greater than 0.02.

8. The composite of claim 1 wherein the multilayer optical adhesive consists of 10 or more layers having monotonically varying indices of refraction between  $n_1$  and  $n_i$ , and the difference between the refractive indices of any two adjacent layers is no greater than 0.02.

9. The composite of claim 1 wherein  
the multilayer optical adhesive comprises 5 or more layers,  
the difference between  $n_1$  and  $n_i$  is at least 0.2, and  
the reflectivity of the composite is less than 0.0004.

10. The composite of claim 1 wherein  
the multilayer optical adhesive comprises 5 or more layers,  
the difference between  $n_1$  and  $n_i$  is at least 0.4, and  
the reflectivity of the composite is less than 0.0004.

11. The composite of claim 10 wherein  
the multilayer optical adhesive comprises 10 or more layers,  
the difference between  $n_1$  and  $n_i$  is at least 0.4, and  
the reflectivity of the composite is less than 0.0002.

12. The composite of claim 1 wherein the first layer and the  $i^{\text{th}}$  layer are non-adhesive optical component layers comprising material selected from an organic polymeric material and a glass material.

13. The composite of claim 12 wherein  $n_1$  is below about 1.6 and  $n_i$  is greater than about 1.6.

14. The composite of claim 12 wherein  $n_1$  is below about 1.5 and  $n_i$  is greater than about 2.0.
15. The composite of claim 12 wherein the difference in indices of refraction of the first layer and the  $i^{\text{th}}$  layer is at least 0.4, and the multilayer optical adhesive composite has 5 or more layers.
16. The composite of claim 12 wherein the difference in indices of refraction of the first layer and the  $i^{\text{th}}$  layer is at least 0.5, and the multilayer optical adhesive composite has 10 or more layers.
17. The composite of claim 1 wherein
  - the multilayer optical adhesive composite consists essentially of 4 or more adhesive layers,
    - each layer of the multilayer optical adhesive comprises a blend of two common ingredients in different amounts that alter indices of refraction of the layers.
18. The composite of claim 17 wherein the common ingredients are a polymeric material and nanoparticles that alter the index of refraction of the polymeric material.
19. The composite of claim 17 wherein the common ingredients are two different polymeric materials.
20. The composite of claim 12 wherein
  - the multilayer optical adhesive composite consists essentially of 4 or more adhesive layers,
    - each adhesive layer comprises copolymer comprising two common monomeric units in different amounts that alter indices of refraction of the layers.
21. The composite of claim 1 wherein the multilayer optical composite is a touch screen display comprising a conductive layer.

22. A multilayer optical article comprising  
a first optical component having an index of refraction  $n_1$ ,  
a second optical component having an index of refraction  $n_i$  greater than  $n_1$ ,  
and  
a multilayer optical adhesive between the first optical component and the  
second optical component to reduce interfacial reflection between the first optical  
component and the second optical component,  
wherein the multilayer optical adhesive consists essentially of adhesive layers  
having indices of refraction that vary monotonically between  $n_1$  and  $n_i$ .
23. The article of claim 22 wherein the multilayer optical adhesive composite consists  
essentially of from 5 to 15 adhesive layers.
24. A multilayer optical adhesive comprising three or more layers comprising  
a first adhesive layer having an index of refraction  $n_{a1}$ ,  
a second adhesive layer having an index of refraction  $n_{ai}$ , and  
a polymeric intermediate layer having an index of refraction between  $n_{a1}$   
and  $n_{ai}$ .
25. The multilayer optical adhesive of claim 24 consisting essentially of from 3 to 20  
adhesive layers arranged monotonically based on index of refraction.
26. A multilayer optical adhesive comprising 3 or more adhesive layers having indices  
of refraction that vary monotonically between the outermost adhesive layers.
27. The multilayer optical adhesive of claim 26 consisting essentially of from 5 to 20  
adhesive layers having monotonically varying indices of refraction.
28. The multilayer optical adhesive of claim 26 consisting essentially of from 9 to 15  
adhesive layers.

29. The multilayer optical adhesive of claim 26 consisting of from 5 to 20 adhesive layers having monotonically varying indices of refraction.
30. The multilayer optical adhesive of claim 26 consisting of from 9 to 15 adhesive layers having monotonically varying indices of refraction.
31. A method of reducing reflectivity between two optical layers, the method comprising
- providing two optical layers, layer 1 having an index of refraction  $n_1$  and layer  $i$  having an index of refraction  $n_i$ , and which exhibit a reflectivity at an interface between the two optical layers,
- providing two or more intermediate adhesive layers between layer  $n_1$  and  $n_i$ , to form a multilayer optical composite,
- wherein the indices of refraction of intermediate adhesive layers are between  $n_1$  and  $n_i$ , and the reflectivity of the multilayer optical composite is less than the reflectivity at the interface between the two optical layers without the intermediate adhesive layers.
32. The method of claim 31 comprising providing a multilayer optical adhesive between layer  $n_1$  and  $n_i$ , the multilayer optical adhesive comprising from 2 to 20 adhesive layers having indices of refraction that vary monotonically between  $n_1$  and  $n_i$ .
33. The method of claim 31 comprising laminating layers of pressure sensitive adhesive together to form a multilayer optical adhesive.
34. A method of producing a multilayer optical adhesive, the method comprising arranging three or more layers of polymeric material into a composite comprising
- a first adhesive layer having an index of refraction  $n_{a1}$ ,
- a second adhesive layer having an index of refraction  $n_{ai}$ , and
- a polymeric intermediate layer having an index of refraction between  $n_{a1}$  and  $n_{ai}$ .

35. The method of claim 34 comprising arranging two or more polymeric intermediate layers between the first and second adhesive layers, each polymeric intermediate layer having an index of refraction between  $n_{a1}$  and  $n_{ai}$ .

36. The method of claim 35 comprising arranging from 3 to 20 polymeric intermediate layers between the first and second adhesive layers, the polymeric intermediate layers having indices of refraction that vary monotonically between  $n_{a1}$  and  $n_{ai}$ .

37. The method of claim 35 comprising arranging from 9 to 15 polymeric intermediate layers between the first and second adhesive layers, the polymeric intermediate layers having indices of refraction that vary monotonically between  $n_{a1}$  and  $n_{ai}$ .